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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/696,034	10/30/2003	Peter Rabinovitch	3461-Z	6028

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EXAMINER	
JAKOVAC, RYAN J	

ART UNIT	PAPER NUMBER
2445	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/696,034	RABINOVITCH ET AL.	
	Examiner	Art Unit	
	RYAN J. JAKOVAC	2445	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 March 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8,12-23,25-28 and 30-45* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,12-23,25-28 and 30-45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *03/17/2009*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed 03/18/2009 has been entered.

Response to Arguments

2. Applicant's arguments with respect to claims 1-8, 12-23, 25-28, 30-46 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 1 and 25 are rejected under 35 U.S.C. 101; these claims cites a method but fails to (1) positively recite the statutory class to which they are tied to, or (2) transform underlying subject matter (such as an article or material) to a different state or thing. The method is directed towards the functions of network nodes, however, this/these element(s) is/are interpreted as being embodied in software or a program per se and thus do not belong to any statutory class.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-8, 12-23, 25-28, 30-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 20040255151 to Mei et al (hereinafter Mei) in view of "Real-time SLA Monitoring Tools" and further in view of US 2004/0153563 to Shay et al (hereinafter Shay).

Regarding claim 1, 25, 44, and 46, Mei teaches a method of characterizing a content traffic flow at communication nodes of a communications network for communications network Service Level Agreement (SLA) compliance assessment by a central entity connected to said communication nodes, the method comprising:

at least one of said communications modes tracking cumulative content arrivals, in real time, for the content traffic flow to derive a time variation of cumulative content arrivals (Mei, paragraph [0022-0025], a plurality of sensors monitor network traffic. The sensors monitor network traffic and communicate information back to the SLA enforcing system. The sensors therefore function as communication nodes.); and

Mei does not expressly disclose (b) said at least one of said nodes adjusting characteristic arrival curve parameters in fitting an arrival curve to the variation of cumulative content arrivals for the content traffic flow. However, "Real-time SLA Monitoring Tools" discloses said at least one of said nodes adjusting characteristic arrival curve parameters in fitting an arrival curve to the variation of cumulative content arrivals for the content traffic flow ("Real-time SLA Monitoring Tools", discloses a plurality of network nodes which run in real-time to provide SLA verification by monitoring and testing data. The network nodes, or "verifiers", existing at a plurality of points throughout the network, apply different testing parameters to the data they monitor. The results of the testing is then transmitted back to the SLA verification servers.); and

Mei discloses said at least one of said nodes reporting said adjusted arrival curve parameters to said central entity to enable said central entity to carry out said SLA compliance assessment with respect to the content traffic flow, thereby reducing reporting bandwidth overhead by minimizing an amount of content arrival information communicated to central entity (Mei, [0022-0025], sensors report data back to the SLA enforcing system in order to enforce SLA agreements.).

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to combine at least one of said nodes adjusting characteristic arrival curve parameters in fitting an arrival curve to the variation of cumulative content arrivals for the content traffic flow as taught by "Real-time SLA Monitoring Tools" with the method of Mei in order to provide a combination of continuous traffic analysis and proactive network testing in order to prove service performance as well as to provide active service level agreement verification (See "Real-time SLA Monitoring Tools").

The combination of Mei and "Real-Time SLA Monitoring Tools" does not expressly disclose the arrival curve parameters comprising at least a slope and an ordinate intercept, however, Shay discloses the arrival curve parameters comprising at least a slope and an ordinate intercept (Shay, fig. 5, the service level metrics exhibit a slope and ordinate intercept, see [0022-0023]. Analysis is applied to the service level metrics. The metrics are monitored in order to compare results of this monitoring to SLA thresholds.).

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to combine the arrival curve parameters comprising at least a slope and an ordinate intercept as taught by Shay with the combination of Mei and "Real-time SLA Monitoring Tools" to be able to avoid service level agreement (SLA) violations by processing metrics representing the conditions of a network to predict future SLA values which would provide the advantage of avoiding SLA violations (Shay, abstract.).

Regarding claim 2 and claim 25, the combination of Mei, "Real-time SLA Monitoring Tools", and Shay teaches the method of providing a content traffic flow characterization as claimed in claim 1, wherein reporting curve parameters to the central entity is carried out in real time, and reporting is limited to arrival curve parameters only ("Real-time SLA Monitoring Tools", the verifiers send back reports (i.e. arrival curve parameters) to the central SLA verification system.).

Regarding claim 3 and claim 26, the combination of Mei, "Real-time SLA Monitoring Tools", and Shay teaches the method claimed in claims 1 and 25, further comprising: said at least

one of said nodes including a timestamp specifying the time of the arrival curve fit. ("Real-time SLA Monitoring Tools", verifiers time-stamp packets.)

Regarding claim 4 and claim 27, the combination of Mei, "Real-time SLA Monitoring Tools", and Shay teaches the method claimed in claim 1, comprising: said at least one of said nodes receiving a request for an arrival curve parameter update (Mei, paragraph [0013], incoming events cause an action which results in dynamic updates (i.e. arrival curve parameter updates).), reporting arrival curve parameters to the central entity only in response to a request; and further providing a reduction in the reporting bandwidth overhead (Mei, paragraph [0022], Network traffic is monitored and reported to the SLA system.).

Regarding claim 5 and claim 28, the combination of Mei, "Real-time SLA Monitoring Tools", and Shay teaches the method claimed in claim 1, further comprising: said at least one of said nodes tracking one of cumulative received packets, bits, bytes, words, and double words (Mei, paragraph [0022], Network traffic is monitored.).

Regarding claim 6 and claim 29, the combination of Mei, "Real-time SLA Monitoring Tools", and Shay teaches the method claimed in claim 1, further comprising: said at least one of said nodes adjusting two arrival curve parameters in fitting a two parameter arrival curve (Mei, paragraph 0029], signature and ID.).

Regarding claim 7 and claim 30, the combination of Mei, "Real-time SLA Monitoring Tools", and Shay teaches the method claimed in claim 1, further comprising: said at least one of said nodes adjusting four arrival curve parameters in fitting a four parameter arrival curve (Mei, paragraph 0029], Four parameters in security rules.).

Regarding claim 8 and claim 31, the combination of Mei, "Real-time SLA Monitoring Tools", and Shay teaches the method claimed in claim 1, said at least one of said nodes fitting the arrival curve in accordance with one of a shifted linear regression procedure, and a convex hull fitting procedure (Mei, paragraph [0037], security rules are mapped into a data point in a multidimensional space.).

Regarding claim 12 and 45, Mei teaches a method of assessing communications network conformance to a Service Level Agreement (SLA) in respect of a content traffic flow at communication nodes of a communications network, the method comprising steps of: Mei does not expressly disclose (a) receiving from at least one of said communication nodes an arrival curve parameter report in respect of a tracked content traffic flow from a network node in real time, However, "Real-time SLA Monitoring Tools" discloses (a) receiving from at least one of said communication nodes an arrival curve parameter report in respect of a tracked content traffic flow from a network node in real time ("Real-time SLA Monitoring Tools", reports are sent back from monitoring nodes to the central SLA verification system.);

Mei discloses (b) computing a resource utilization related value based on the received arrival curve parameter report in respect of a content traffic flow pattern and at least one service

curve (Mei, paragraph [0026], incoming events are matched against security rules.); and (c) providing a communications network SLA conformance assessment based on the computed resource utilization related value, wherein receiving arrival curve parameters only enables the provision of a real-time scalable communications network SLA conformance assessment solution while reducing bandwidth overhead by minimizing an amount of content arrival information communicated by said at least one of said nodes (Mei, paragraphs [0013], [0022-0025], actions are triggered to enforce SLA based on monitoring incoming events and security rules.).

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to combine (a) receiving from at least one of said communication nodes an arrival curve parameter report in respect of a tracked content traffic flow from a network node in real time as taught by "Real-time SLA Monitoring Tools" with the method of Mei in order to provide a combination of continuous traffic analysis and proactive network testing in order to prove service performance as well as to provide active service level agreement verification (See "Real-time SLA Monitoring Tools").

The combination of Mei and "Real-Time SLA Monitoring Tools" does not expressly disclose the arrival curve parameters comprising at least a slope and an ordinate intercept, however, Shay discloses the arrival curve parameters comprising at least a slope and an ordinate intercept (Shay, fig. 5, the service level metrics exhibit a slope and ordinate intercept, see [0022-0023]. Analysis is applied to the service level metrics. The metrics are monitored in order to compare results of this monitoring to SLA thresholds.).

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to combine the arrival curve parameters comprising at least a slope and an ordinate intercept as taught by Shay with the combination of Mei and "Real-time SLA Monitoring Tools" to be able to avoid service level agreement (SLA) violations by processing metrics representing the conditions of a network to predict future SLA values which would provide the advantage of avoiding SLA violations (Shay, abstract.).

Regarding claim 13 and claim 32, the combination of Mei, "Real-time SLA Monitoring Tools", and Shay teaches the method claimed in claim 12, further comprising: requesting an arrival curve parameter report from one of said nodes (Mei, paragraph [0022], SLA enforcing system receives the monitored network traffic.).

Regarding claim 14 and claim 33, the combination of Mei, "Real-time SLA Monitoring Tools", and Shay teaches the method claimed in claim 12, further comprising: retrieving the at least one service curve from storage in respect of the content traffic flow (Mei, paragraph [0014], post-event analysis is implemented for dynamically changing the mapping of SLAs and security rules.).

Regarding claim 15 and claim 34, the combination of Mei, "Real-time SLA Monitoring Tools", and Shay teaches the method claimed in claim 12, further comprising: retrieving the at least one service curve from said at least one node, said at least one node being in a path of the

content traffic flow (Mei, paragraph [0022-0025], sensors placed through the system send information to the SLA server.).

Regarding claim 16 and claim 35, the combination of Mei, "Real-time SLA Monitoring Tools", and Shay teaches the method claimed in claim 12, further comprising: retrieving from storage a sequence in which multiple service curves are to be combined with the arrival curve parameters in respect of the content traffic flow (Mei, paragraph [0014], post-event analysis is implemented for dynamically changing the mapping of SLAs and security rules.).

Regarding claim 17 and claim 36, the combination of Mei, "Real-time SLA Monitoring Tools", and Shay teaches the method claimed in claim 12, further comprising: discovering a sequence in which multiple service curves are to be combined with the arrival curve parameters in respect of the content traffic flow (Mei, paragraph [0013], security rules are mapped to a plurality of incoming events.).

Regarding claim 18 and claim 37, the combination of Mei, "Real-time SLA Monitoring Tools", and Shay teaches the method claimed in claim 12, further comprising: computing Quality-of-Service (QoS) parameters (Mei, paragraph [0004], SLAs include QoS requirements.).

Regarding claim 19 and claim 38, the combination of Mei, "Real-time SLA Monitoring Tools", and Shay teaches the method claimed in claim 12, further comprising: convolving an

arrival curve respecting the received arrival curve parameters with a service curve (Mei, , Arriving content is matched against security rules.).

Regarding claim 20 and claim 39, the combination of Mei, "Real-time SLA Monitoring Tools", and Shay teaches the method claimed in claim 12, further comprising: comparing the computed resource utilization related value with a corresponding agreed upon resource utilization value (Mei, paragraph [0013], incoming events are processed and evaluated against security rules.).

Regarding claim 21 and claim 40, the combination of Mei, "Real-time SLA Monitoring Tools", and Shay teaches the method claimed in claim 12, further comprising: selectively modifying communications network operational parameters to ensure that the resource utilization values comply with agreed upon SLA resource utilization values (Mei, paragraph [0013], dynamic updates to security rules.).

Regarding claim 22 and claim 41, the combination of Mei, "Real-time SLA Monitoring Tools", and Shay teaches the method claimed in claim 12, further comprising: selectively modifying SLA specified resource utilization values to ensure that the current communications network operation is accommodated in the SLA (Mei, paragraph [0013], dynamic updates to security rules.).

Regarding claim 43, the combination of Mei, "Real-time SLA Monitoring Tools", and Shay teaches the method claimed in claim 25, wherein the central entity is a network management system (Mei, Fig. 1, SLA system.).

7. Claims 23 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Mei and "Real-time SLA Monitoring Tools" in view of Shay and further in view of U.S. 2002/0049841 to Johnson et al (hereinafter Johnson).

Regarding claim 23 and claim 42, the combination of Mei, "Real-time SLA Monitoring Tools", and Shay teaches the method claimed in claim 12. The combination of Mei and "Real-time SLA Monitoring Tools" does not expressly disclose further comprising: providing a proposal for traffic content redirection onto one of existing infrastructure and new to be deployed infrastructure.

However, Johnson teaches providing a proposal for traffic content redirection onto one of existing infrastructure and new to be deployed infrastructure (Johnson, paragraph [0271], Service functions include redirection decisions.).

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to combine providing a proposal for traffic content redirection onto one of existing infrastructure and new to be deployed infrastructure as taught by Johnson with the method of the combination of Mei, "Real-time SLA Monitoring Tools", and Shay in order to manage traffic on a network and provide differentiated service functions or tasks that may be performed by a traffic management node include, such as redirection decisions (Johnson, paragraph [0271]).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RYAN J. JAKOVAC whose telephone number is (571)270-5003. The examiner can normally be reached on Monday through Friday, 7:30 am to 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivek Srivastava can be reached on 571-272-7304. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/RJ/

/Larry D Donaghue/
Primary Examiner, Art Unit 2454